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South Carolina Department of Health and Environmental Control

Office of Environmental Control

120 Day Plan
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South Carolina's Environmental Facility Information System

The Environmental Facility Information System (EFIS) is an enterprise-wide, client-server information system developed by the state of South Carolina. The system integrates information on environmental facilities, permits, violations, enforcement actions, and compliance activities needed to support regulatory requirements and target environmental quality improvements for the water, air, solid waste and hazardous waste program areas. The system architecture is based on the Oracle 8.1.6 database and includes web components for electronic forms submittal and a Geographical Information System (GIS) interface.

System Status

As of this writing, EFIS is approximately sixty percent deployed. All common modules, as noted on the Deployment Status (Attachment A), are complete and are immediately available to any business module coming on-line. A list of business modules in production is also included on the attachment, as is the list of modules planned for deployment.

We plan on full deployment of EFIS Phase I, as noted on Attachment A, by the end of calendar year 2001. A breakdown of these efforts and the extended plan is listed in the body of this report.

Accountability for the development of EFIS lies with the Information Technology (IT) Section, Environmental Quality Control ((EQC) Administration, which oversees both internal developers and the Unisys contractors. The IT Section also oversees the efforts of three short-term contractors, who've been assigned to specific module development under the plan.

South Carolina has met with other states (Connecticut, Maine, Pennsylvania, and Virginia) in the planning and development of this system. We have participated in an information technology exchange with Virginia, and plan to use some of their modules to accelerate portions of EFIS development. Additionally, we meet twice yearly with the information management officials in EPA Region 4 for an overview of on-going efforts in those states and an exchange of information pertinent to one another's projects.

Vision, Goals and Objectives

By the end of 2001, we plan to have fully deployed Phase I of the Environmental Facility Information System. This includes the business processes for all essential regulatory, permitting and billing aspects of Environmental Quality Control, and a fully integrated database of all environmental information with the exception of ambient monitoring data. It is our goal to expand the application to include participation in the EPA data exchange network, e-commerce (through the state portal), on-line reporting and permit application submission using e-forms, and web-based access to EFIS.

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Work Plan

Short-Term Plan (12-18 months)
- Complete EFIS Phase 1 for remaining program areas: Hazardous Waste, Waste Water, Drinking Water, Radiological Health, Dry Cleaners, Toxic Release Inventory, TIER 2, Heath Hazard Evaluation, and Mining
- Enhance GIS Integration into EFIS for Intranet and Public access
- Provide permit application forms via Web for off-line electronic data entry and local storage.
- *Ad-hoc* query and reporting capabilities deployed to all program areas
- Develop permit application status query capabilities via the Web for agency customers
- Complete the compliance determination modules for the Air Quality and Drinking Water programs.

Mid-Range Plan (2-3 Years)
- Electronic forms integration with EFIS
- Web e-commerce integrated with EFIS and the state portal
- Fully functional data warehouse of environmental information
- Web-enabled EFIS for internal users via thin-client
- Reporting to EPA data exchange network via Network Templates (XML)
- Develop applications for mobile devices (PDA and/or laptop) for inspections and complaint investigations
- *Ad-hoc* query and reporting capabilities available to public via Web
- Fully deployed permit application status query via Web
- Develop interfaces for ambient data integration with EFIS
- Full Work-flow automation between program areas

Long-Term Plan (4-5 years)
- Full GIS data integration with EFIS, using ESRI's Spatial Database Engine (SDE)
- Integration of document imaging
- Fully Web-enabled EFIS (internal and external)
- Support of industry reporting via network templates (XML)
- Fully deployed interfaces for ambient data integration with EFIS, possibly with STORET-X.
- Support for environmental indicators as identified in agency's Strategic Plan

Work Plan and the One Stop Grant

Activities funded under the One Stop grant will concentrate on those items identified on the grant proposal and during the baseline visit. These are the development and deployment of *ad hoc* reporting capability, the enhancement and further integration of GIS with EFIS, and increasing accessibility to EFIS information for both internal and external users through web-enabling the query and reporting features of the application. This last includes porting to current versions of

Oracle and incorporating thin client technology to maximize response and throughput over the wide area network.

Work Plan and the One Stop Building Blocks

<u>Integrated Information</u>

We are fully committed to the integration of both environmental information and the business processes of the agency. This goal was paramount in the development of the application and is apparent in the common modules used by all business modules.

EFIS Phase I provides an integrated environmental regulatory information system used by all environmental regulatory programs within DHEC. By integrating facility, fee and regulatory information across the traditional program boundaries, EFIS provides a multimedia approach to streamlined environmental permitting and other regulatory activities.

EFIS provides a spatial (GIS) interfaces to environmental facility information for use in permit decision-making and site assessments; a universal, multimedia facility identifier that satisfies the EPA Facility ID initiative; and integrates violation and enforcement information, which enables the system to proactively identify environmental concerns (hot spots) and target improvements at a state-wide level.

A full set of data standards have been implemented for EFIS, which are compliant with those being developed by the ECOS Information Management Work Group (IMWG). EQC participates in the activities of this group. Steve Vassey, the manager of the IT Section, has just been named as a member of the Data Standards Council.

<u>Burden Reduction</u>

We are initially addressing this issue through the objective of incorporating e-forms for the purpose of permit application submissions. While this feature is limited to certain permits at this phase o fht project, the goal is to ultimately expand the functionality to provide a paperless permit application process for DHEC's regulatory customers. Additionally, the electronic application function and the integrated approach to environmental information provide the infrastructure for incorporating one-stop reporting in future development.

<u>Universal Access</u>

As noted in the above plan, it is our plan to web-enable the EFIS application to facilitate access by both internal and external customers. At fruition, this will include the integration of geographic information, access to permit application status, and ad hoc reporting for our public users. The long-term plan incorporates access to ambient monitoring data and the ability to gauge the health of the environment through environmental indicators (as identified in the agency Strategic Plan).

DHEC currently has a fully established web site (http://www.scdhec.net) for use by the public to access agency information. The site includes both public health and environmental information. The environmental portion of the website is located at http://www.scdhec.net/eqc.

Stakeholder Involvement

The development of EFIS has include stakeholder involvement from its inception. Initially, developers met with all environmental program areas to receive their input, identify the needed business processes and establish the development plan.

The EFIS project development and funding involved many external stakeholders, including the regulated community, public interest groups, academicians and professionals of many fields. Some of the most active groups were:

> The University of South Carolina
> Clemson University
> The Technical Committee of the South Carolina State Chamber of Commerce
> The South Carolina Manufacturer's Alliance
> The South Carolina Petroleum Council

The Department has held public forums around the state to ascertain the wants and needs of the General Public, as well as certain public environmental interest groups, that clearly spelled out a great need for more access to information. As development continues, we will continue this process.

Electronic Reporting

Plans in this area have already been addressed in the Burden Reduction, above.

Key Program Participants

These individuals were identified in the original grant proposal and are included as Attachment B.

Measuring Success

South Carolina will provide reports at six-month intervals to our One-Stop contact at Region 4, USEPA, outlining the progress made in the items targeted under the One Stop grant, and listing the overall status of EFIS development and deployment.

Challenges

A number of challenges exist with an information technology effort of this magnitude. Continued resources, management commitment and stakeholder involvement are vital to the success of this project.

Attachment A

Environmental Facility Information System
Deployment Status

EFIS Common Modules

Facilities/Companies
People
Project Tracking
Permitting
Tasks (inspections, Reviews)
Security
Document Printing and Tracking
Violations, Enforcement Actions, Referrals
Audit History

EFIS Business Modules in Production

	Date Completed
Ocean and Coastal Resources (OCRM)	8/99
On-Call Notification	10/99
Incidents	4/00
Document Printing and Version Tracking	4/00
Tasks, Regulatory Clock Automation	8/00
Air Permitting	8/00
Solid Waste Permitting	8/00
Facility Identifier	8/00
Lab Certification	9/00
Fees Interface to Financial System (CARS)	9/00
E-mail Notifications (GroupWise, Internet)	12/00
Enforcements, Violations, Referrals (OCRM)	1/01
Recreational Waters	1/01
Underground Storage Tanks (UST)	2/01
Infectious Waste	3/01
Backflow Certifications	4/01
Ad-hoc Query for OCRM Permitting using Discoverer	4/01

EFIS Modules in Deployment Planning

	Date Production Planned
Public Notifications for Air General Permits	5/01
Air Permit Title V Document Generation	5/01
Agricultural Waste	6/01
Asbestos	6/01
Dams and Reservoirs	6/01
Shellfish	6/01
Solid Waste Operator Certification	6/01
Air Permit Construction Document Generation	6/01
Waste Minimization	6/01
Hazardous Waste	7/01
Waste Water	7/01

Attachment A

Remaining EFIS Phase I Modules to be Deployed in 2001

Web/GIS Integration
Air Compliance
Air Technical Management
Groundwater Quality
Ad-hoc Query and Reporting
Criminal Investigations
Web Electronic Forms
Water Quality Certification
Solid Waste Enforcement
Legal
Drinking Water Permitting/Compliance

TRI, TIER 2
Small Business
Monitoring Well Tracking
Health Hazard Evaluation
Mining
Water Capacity Use
Process Scripting
Automated Mangement Reporting (permits, Enforcements)
Underground Injection
State Revolving Fund
Radiological Health
OCRM Billing
Dry Cleaners
Radioactive Waste Transport

EFIS Phase II Features

Enhancements for Public Access via Web
Enhanced GIS capabilities
Imaging Integration
Support for Mobile operations via laptop
Support for Palm devices for Inspections
Support for EPA data interchange programs
Enhanced workflow automation
Ability to determine the health of the environment via selected environmental indicators

Attachment B

Key Program Participants

The primary development of EFIS Phase I is being done under contract with Unisys Corporation. In addition, the EQC Information Technology Section provides two full-time developers (including the project manager), two network/technical support staff, two GIS support staff and one Oracle database administrator. The IT Section staff fall within the Division of Research and Planning which reports directly to the Deputy Commissioner for Environmental Quality Control.

Each of the environmental program areas (Air Quality, Water, Land, and Waste Management, Environmental Services, Underground Storage Tanks, and Ocean and Coastal Resource Management) ahs dedicated staff to EFIS development, maintenance, deployment and training. The following is a breakdown of the roles and duties assigned to EFIS program area personnel:

- **EFIS Coordinator** (0.25 – 0.30 FTE): Responsible for coordinating EFIS issues as they relate to permitting, compliance, monitoring, enforcement, and fees for a given program area. Documents and discusses issues with the EFIS Project Manager, developers and program personnel on a weekly basis.

- **EFIS Module Administrator** (0.10 FTE): Responsible for the set-up and modification of lookup tables (LOVs), adding new users, modifying user security, and serving as first-line technical support for the program area.

- **EFIS Developer** (1 – 2 FTEs): Responsible for on-going modifications and enhancements to common and program-specific EFIS modules. This includes handling requests for additional fields, modifications to forms (screens), adding and modifying reports and documents, and adding new functionality as needed. The developer is responsible for diagnosing problems with program-specific forms and reports, and reporting problems with the EFIS common reports and screens to the EFIS support group. The developer works with the core development team on common modules to insure program area needs are met.

- **User Trainer** (0.05 – 0.10 FTE): Responsible for training program area personnel in the use of program-specific modules. This includes defining the standard operating procedures for a given area. Note: User training in common EFIS modules is conducted by EQC Training Coordinator on a routine basis.

- **User Testing:** As EFIS is deployed, each program area provides users knowledgeable in the business processes to test the common and program-specific modules for their business needs. At the time of this writing, there are over 65 users involved in testing the UST, Air, Water, Land and Waste Management, and Laboratory Certification program areas.